

FUS-16.462
09/387,949REMARKS

This amendment is in response to the Examiner's Office Action dated 6/4/2003 and further in view of the interview of 4/2/04. Applicants are appreciative for the interview of April 2, 2004, and for the positive conclusions about claim subject matter and prior art applicability. Applicants are also appreciative for the recognized allowable subject matter. This amendment should obviate outstanding issues and make the remaining claims allowable. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

STATUS OF CLAIMS

Claims 1-7 are pending.

Claims 1-3 stand rejected under 35 USC 102(e) as being anticipated by Azuma (USP 6,430,150).

Claim 4 stands rejected under 35 USC 103(a) as being unpatentable over Azuma as applied to claim 1 above and further in view of Renaudin (USP 4,388,715).

Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

OVERVIEW OF CLAIMED INVENTION

The presently claimed invention provides for a cross-connect method and a cross-connect apparatus, both of which apply a cross-connect operation in place of a function of the hard switch (that has conventionally been used for a purpose other than a cross-connect operation) by selection of line setting information used for path switching or service selection and by changing

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a cross-connect operation through the use of the line setting information signal. Hence, the cross-connecting operation of the present invention is shared by the cross connecting operation for the main signal (including a working channel signal transmitted over a working path and a protection channel signal transmitted over a protection path) and the switching operation between the working path and the protection path. Therefore, the present invention needs no hardware switches, such as a path switch, exclusive for conducting the switching operation between the working path and the protection path, in addition to a cross-connect section.

The present invention's cross-connect method performs a cross-connect operation on a main signal, wherein the method comprises the steps of: (a) retaining line setting information required for the cross-connect operation; (b) detecting trigger information, causing a selection of either the working path or the protection path, for an individual channel signal from said main signal; (c) detecting cross-connecting trigger information pieces for the individual channel signal according to the line setting information; and (d) controlling the cross-connect operation of the main signal based on said line setting information and the cross-connected trigger information pieces so that either the working channel signal or the protection channel signal is selectively output under the cross-connect operation for the main signal, wherein the cross connect operation is shared for cross-connecting and the selective outputting operation.

The present invention's cross-connect apparatus comprises: (a) a main signal cross-connect section for performing a cross-connect operation on a main signal; (b) a memory section for retaining line setting information required for the cross-connect operation; (c) a trigger information detecting section for detecting trigger information, causing a selection of either the working path or the protection path, for an individual channel signal from said main signal; (d) a

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trigger information cross-connect section for cross-connecting trigger information pieces detected by said trigger information detecting section for the individual channel signal according to the line setting information; and (e) a cross-connect control section for controlling the cross-connect operation of the main signal cross-connect section, based on said line setting information of the memory section and the trigger information cross-connected by the trigger information cross-connect section so that either the working channel signal or the protection channel signal is selectively output under the cross-connect operation of the main signal cross-connect section, wherein the cross connect operation is shared for cross-connecting and the selective outputting operation.

In the Claims

Based on the interview summary dated 4/2/2004, applicants consider the rejections to claims 5-7 moot in view of the typographical error in the office action dated 6/4/2003. Applicants' representative pointed out during the interview of 4/2/2004 that independent claim 5 was rewritten in independent form (as per examiner's suggestion in the office action of 11/15/2002) and is in condition for allowance. Applicants' representative also pointed out during the same interview that claims 6 and 7 are also in condition for allowance as they depend from independent claim 5. Based on the interview of 4/2/2004, agreement was reached with respect to the allowability of claims 5-7.

The examiner has rejected independent claims 1 and 2 under 35 U.S.C. §102(e) as being anticipated by the Azuma reference (6,430,150), hereafter Azuma. To properly rejected under 35 U.S.C. §102(e), the applied reference (i.e., Azuma) has to provide for each and every limitation of the rejected claim. Applicants contend, based upon the interview of 4/2/2004, the arguments

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presented in the current response, and the amendments made to claims 1 and 2, that Azuma fails to provide for many of the limitations of the claimed invention.

Azuma discloses an automatic failure restoration method of a communication channel in mesh type network, wherein the method involves transmitting information, including physical topology information and logic topology information relating to trouble, to each communication node during failure generation in network. When a failure occurs, restoration is effected by transmitting information relating to the failure that has occurred in the telecommunication network, throughout the network. Each node that receives the information relating to the failure determines alternative paths for bypassing the failure using the information relating to the failure, the physical topology information, and the logical topology information. Then service is switched to the alternative paths.

The presently claimed invention provides for a cross-connect method and a cross-connect apparatus, both of which apply a cross-connect operation in place of a function of the hard switch that has conventionally been used for a purpose other than a cross-connect operation, by selection of line setting information used for path switching or service selection and by changing a cross-connect operation through the use of the line setting information signal, thereby preventing redundant configuration of the cross-connect apparatus.

Figure 1 of the application as filed discloses one embodiment of applicants' claimed invention. In figure 1, a cross-connect apparatus 1 comprises a cross-connect section 2 for performing a cross-connect operation on a main signal (including a working channel signal transmitted over a working path and a protection channel signal transmitted over a protection

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path), a memory section 3 for retaining line setting information required for performing the cross-connect operation, and a cross connect control section 4 for controlling the cross-connect operation performed in cross-connect section 2. The cross-connect control section 4 is configured so as to control the cross-connect operation performed in the cross-connect section 2 and to selectively output either the working channel signal or the protection channel signal. Hence, the cross-connecting operation of the present invention is shared by the cross connecting operation for the main signal and the switching operation between the working path and the protection path. Therefore, the present invention needs no hardware switches such as a path switch exclusive for conducting the switching operation between the working path and the protection path, in addition to a cross-connect section. The setup of present invention also diminishes power consumption by not having the redundant configuration as outlined in the prior art.

Azuma et al. is silent with respect to many of the limitations of claims 1 and 2 of the present invention. For example, Azuma et al., explicitly or implicitly, fails to provide for a cross-connection operation that is shared between the cross-connect operation and the switching operation of the main signal.

The above-mentioned amendment/arguments for independent claim 2, also substantially apply to dependent claims 3 and 4. Therefore, the examiner is hereby respectfully requested to withdraw the rejections and reconsider dependent claims 3 and 4 as they inherit the limitations of independent claim 2.

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As has been detailed above and further in view of the interview of 4/2/2004, none of the references, cited or applied, provide for the specific claimed details of applicants' presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

The Amendment is being filed with a three-month extension of time. The Commissioner is hereby authorized to charge any deficiencies in the fees provided to Deposit Account No. 50-1290.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicants' representative at the below number.

Respectfully submitted,



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